

CLAIMS

We claim:

1. A structure providing anneal cap, ion implant mask, and shallow trench isolation features for III-V devices comprising a trench etched into the semiconductor, a combination anneal cap/ CMP stop layer, and a dielectric trench fill layer, with significant topography reduction compared to the traditional composite dielectric structure.
2. The multipurpose structure of claim 1, where said III-V semiconductor is GaAs.
3. The multipurpose structure of claim 1, where said III-V semiconductor is InP
4. The multipurpose structure of claim 1, where said III-V semiconductor is GaAs with over-layers of other semiconductors specific to the devices fabricated.
5. The multipurpose structure of claim 1, where said III-V semiconductor is InP with over-layers of other semiconductors specific to the devices fabricated.
6. The multipurpose structure of claim 1, where said combination anneal cap/ CMP stop layer is 100-3000A of silicon nitride.
7. The multipurpose structure of claim 1, where said combination anneal cap/ CMP stop layer is silicon nitride with a thickness 5 to 25 percent of the trench depth to facilitate CMP processing.
8. The multipurpose structure of claim 1, where said dielectric trench fill layer is silicon dioxide.